

Enterprise Risk Models for Insurers

How to choose the right technology for your company

By Nigel Hooker, F.I.A., Ph.D.

Most insurance companies still manage their businesses in silos. But times are changing. Increasingly, ratings agencies are emphasizing the importance of Enterprise Risk Management (ERM). Analysts are demanding risk-focused reporting, and regulators are looking for greater use of internal economic capital models.

Without a total company model, it is impossible to completely understand and manage the business risks. As a result, insurance executives are turning to ERM modeling as a framework for better decision-making in the complex world of insurance. With the right ERM process in place, they can deliver valuable benefits that enable their companies to:

- Better understand and manage risk
- Improve asset-liability management
- More efficiently allocate capital
- Optimize reinsurance purchasing
- Enhance performance management

Maintain or improve ratings
Increase shareholder value

To realize these benefits, technology solutions to support ERM initiatives are mission-critical. It is therefore essential for executives to give the appropriate consideration to the technology choices available.

Types of ERM technologies

ERM has evolved to encompass three types of solutions. Early adopters of ERM technology relied on spreadsheets or other user-developed software. Although this approach can produce correct results, it is highly prone to error and places tremendous burdens on users to design, develop and maintain their own software.

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To reduce problems, companies began using special-purpose development environments, or toolkits. Like user-developed software, toolkits can theoretically promise any feature that users might need. However, toolkits can also be costly in terms of time and resources for development, testing and maintenance. Lengthy development process can lead to an unpredictable result—often an ineffective and unreliable solution. In reality, few companies have actually achieved a true ERM model.

Fortunately for today's insurance executives, state-of-the-art ERM software is now available on a turnkey basis. These software solutions range from relatively simple tools that support only (net) insurance models to high-end systems capable of modeling the global operations of a multi-entity group.

Key requirements for ERM software

From the start, the ERM software should have

been engineered to model an entire insurance company. The solution must support enterprise-wide management of capital and investments, risk and liabilities, reinsurance, corporate planning and economic modeling. This means that all of the company's assets and all of its liabilities are run through the same set of scenarios at the same time. In addition, decision-makers should also consider how effectively the system supports the company's need for:

Flexibility to enable a phased implementation, starting with one or more focused “quick win” projects and then growing to address the entire company's needs.

Verifiable results that support regulatory compliance and audits.

Scalability and high performance to model an insurance business to an adequate degree of complexity.

Integration with the company's data systems and management processes to leverage the existing investment in data, business logic and expertise.

A committed technology provider that excels in delivering training, product enhancements and customer support on an ongoing basis.

Technology evaluation process

Since ERM is a mission-critical solution, top executives including the Chief Financial Officer and Chief Risk Officer are the decision-makers. They must be satisfied that the chosen ERM solution will meet the company's needs now and in the future. Invariably, these executives will need to take advice from domain experts for technology and business areas depending on the company's priorities and implementation plan.

To ensure a “big picture” focus, one or more senior executives should sponsor the ERM initiative. The project sponsors should establish a clear set of business requirements from the outset. Specific ERM features are important, but these must not be focused on to the exclusion of other, more important factors. Given enough time, almost any solution can be extended to include a specific, individual feature that is not included in the existing software.

When evaluating ERM solutions, the price should be considered in the context of the

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economic benefits that are likely to flow from a sound ERM process. These benefits typically dwarf the differences in costs between any of the alternative solutions. As a result, pricing differences should be considered as the final step in the decision-making process, rather than one of the first ones. Therefore the first question should be: Will the ERM solution meet the enterprise's current and future needs when they need to be met? Then the follow up question is: Among the solutions that meet the enterprise's needs, which one has the most favorable cost-benefit structure, in terms of total cost of ownership?

Making an informed technology choice

The range of solutions on the market is limited, and no single solution will likely include every feature that management wants. However, the most important factors to consider are how well the system currently supports the business objectives and how well the system is likely to grow with future needs. The ideal ERM solution for many insurers is a system that meets the following criteria:

It is highly flexible in terms of how the user can customize the models including numbers of segments, statistical distributions for insurance models, types of reinsurance contracts, interaction of treaties, group structure and determination of dynamic strategies.

At the same time the system takes care of routine computations that are standard but potentially time consuming in a toolkit or user-developed software. These span the accounting logic (including consolidation) and a library of standard reports.

The system's code base should be maintained professionally using available software engineering ideas. Versions of the system should be strictly controlled. The software should be thoroughly tested and fully documented.

Yet the system should not be a black box. While the source code may not directly be available to users, the granularity of the potentially available output should be sufficient that users are able to verify each step in the calculations.

The system/vendor should have clear customer service standards and should provide full training, including initial orientation as well as more advanced training for more experienced users.

As a fully-developed software solution, the system would present no development risk as would be the case with development of a model using a toolkit. The system should be ready to use on a plug-and-play basis. In addition, the solution should integrate with the company's other software systems and existing business technology.

The system should have been designed in anticipation of an absolute requirement to keep fully up to date with evolving market requirements. The vendors should be demand-

driven and therefore fully responsive to customer requests for additional functionality. The vendors should expect and welcome proposals for enhancement, as this ensures they stay in tune with their market's needs and expectations.

The vendors should understand that, as sellers of software, they live or die by the quality of their software product. They should not be content to provide so-called templates or modules that do not live up to the most exacting standards and that in time must be substantially replaced or reprogrammed by customers or third parties at high additional costs.

Foundation for competitive advantage

ERM is a foundation for competitive advantage for any insurance company with several business lines, reinsurance activities, rapidly changing business portfolios and significant premium volumes. By modeling the total company, the ERM solution provides management with an aggregated view of all aspects of their business. The strategic ability to view the company's "big picture" can lead to improved ratings, better overall performance and increased shareholder value.

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and premium deficiency reserves. Contract reserves are not addressed.

LTC and Individual Disability Income would benefit from a Life focused disclosure requirement. Most Group Comprehensive Medical coverage would benefit from a Non-Life focused disclosure. There are many health products in-between. Health coverage under IAS financial reporting will be based on type of company - so comparability will not exist. It is also likely relevancy of reported results will be reduced because the wrong focus must be used. Do these issues need addressed? Capital markets say there is a penalty when they don't exist? Isn't that reason enough for us to care?

At their June National Meeting, the NAIC exposed a principles-based approach to regulation of life and health insurance that seeks to develop a new US Statuary approach for reserves, capital, corporate governance, reporting/disclosure (public and supervisory) and financial examinations. Don't let the words Principles-Based Reserving fool you. One stated desire is to "converge towards IAS international solvency principles and international standards to the extent appropriate for the US." From where will the continuous, high level of actuarial involvement necessary to offer good advice to regulators come? As actuaries, let's see all dangers and BE THERE!

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